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Two new records of dragonet fish, *Callionymus sagitta* Pallas, 1770 and *Callionymus erythraeus* Ninni, 1934 from Bangladesh

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Abstract

Two species of the genus *Callionymus* Linnaeus, 1758 are reported for the first time from Bangladesh. *Callionymus sagitta* Pallas, 1770 was collected from Sundarbans mangrove area and *Callionymus erythraeus* Ninni, 1934 from Saint Martin's Island having coral reef-like ecosystem. In fact, no species of the genus *Callionymus* was reported earlier from Bangladesh waters. Both *C. sagitta* and *C. erythraeus* have been identified based on their morphological characters.

Keywords: Callionymidae, Northern Bay of Bengal, Saint Martin's Island, Sundarbans

Introduction

Dragonets of the family Callionymidae are benthic fishes that occur in the temperate, subtropical, and tropical oceans of the world, and a few species are found in estuarine and freshwater (Fricke, 2016). Fricke (1983) has revised the family Callionymidae and reported 126 valid species from the Indo-Pacific region. Fricke (2002) published a checklist of callionymid fishes containing 182 valid species in 10 genera in the world. Subsequently, several additional species were described and so, approximately 200 valid species are currently known worldwide in this family (Fricke *et al*., 2020).

Records of callionymid fishes exclusively of the genus *Callionymus* Linnaeus, 1758 in the Bay of Bengal are fewer in number compared to the western Indian Ocean. Only 24 species of the genus *Callionymus* were recorded from the Bay of Bengal of Myanmar coasts and India (Fricke, 2002; Nair & Kumar, 2018; Froese & Pauly, 2019). However, there are no valid records of any species from the genus *Callionymus* from the marine waters of Bangladesh (Hussain, 1970; Fricke, 2001, 2002; Rahman, *et al.*, 2009; Thompson & Islam, 2010; Froese & Pauly, 2019). In the present paper, authors reported of *C. saggitta* Pallas, 1770 and *C. erythraeus* Ninni, 1934 collected for the first time from Bangladesh waters and confirms its new distributional record along Bangladesh coast.

Material and Methods

One specimen of *C. sagitta* was collected from Alorkol of Dubla Island located at the southern part of Sundarbans mangrove region under Bagerhat district (21°42'21.0" N, 89°35'14.4" E) during December 2016 and one specimen of *C. erythraeus* was collected from the only coral island of Bangladesh namely Saint Martin's Island (20°36'39.6" N, 92°19'37.2" E), near Teknaf Peninsula facing the Bay of Bengal during October 2018 (Figure 1). The examined specimens were deposited in the Aquatic Bioresource Research Lab., Department of Fisheries Biology and Genetics, Sher-e-Bangla Agricultural University, Dhaka, Bangladesh with voucher numbers F1612sb-184 and F1710SM-03. Morphological study was carried by following Fricke (1983, 2001).

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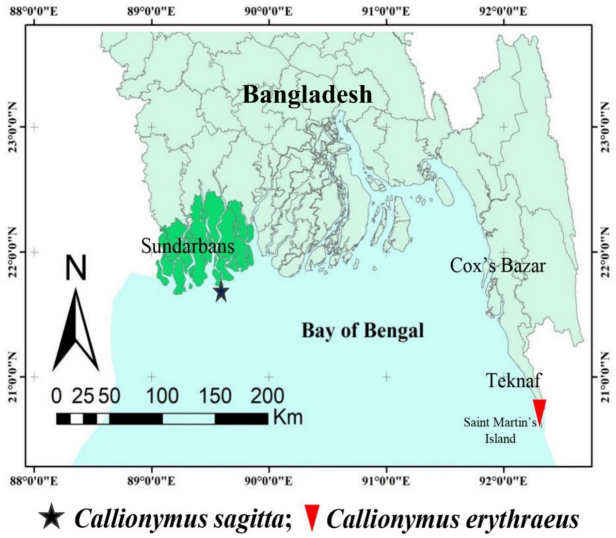

Figure 1. (★) Sampling location of *Callionymus sagitta* (F1612sb-184) and (▼) sampling location of *Callionymus erythraeus* (F1710SM-03).

Figure 2. *Callionymus sagitta* (F1612sb-184) from Sundarbans coast, Bangladesh.

Table 1. Morphometric and meristic characteristics of the collected specimens of *Callionymus sagitta* (F1612sb-184) and *Callionymus erythraeus* (F1710SM-03).

Parameters	F1612sb-184	F1710SM-03
Standard length (mm)	61.0	72.5
In percent of Standard length		
Body depth	11.48	7.69
Head length	40.98	37.18
First dorsal fin base length	8.20	7.69
Second dorsal fin base length	39.34	30.77
Anal fin base length	38.69	28.21
Pectoral fin base length	8.20	24.36
Longest dorsal fin spine length	9.84	28.21
Longest dorsal fin ray length	14.75	14.10
Pectoral fin length	26.77	24.36
Anal fin length	13.11	
Caudal fin length	22.95	30.77
Caudal peduncle length	13.11	20.51
In percent of Head length		
Eye diameter	33.84	27.59
Snout length	24.16	20.69

Results

Taxonomic account of *Callionymus sagitta* Pallas, 1770 collected from Sundarbans, Bangladesh and *Callionymus erythraeus* Ninni, 1934 collected from Saint Martin's Island, Bangladesh are given hereunder:

Callionymus sagitta Pallas, 1770 (Figure 2)

Arrow dragonet

Material examined: F1612sb-184, 1 ex., 61 mm SL, Bangladesh: Bagerhat, Sundarbans, Alorkol (21°42'21.0" N, 89°35'14.4" E), 16.xii.2016, K.A. Habib & A.K. Neogi.

Diagnosis: Body elongate, moderately depressed. Opercle without a free flap of skin. Inter orbital distance less than 1/3 of ED. Upper jaw protractile, posterior end not reaching anterior edge of eye. Preopercular spine with a slightly up curved main tip and 5 slightly recurved dorsal tips (additionally to main tip) at its dorsal margin; opercle and subopercle spineless, first spine of first dorsal fin not filamentous. Consisting flexible spines, first ray of 2nd dorsal fin larger than first spine of 1st dorsal fin (first dorsal ray 1.4 in first dorsal fin spine). First dorsal fin with IV spines; 2nd dorsal fin with 9 rays (last dorsal ray divided at its base); pectoral soft ray 16; pelvic soft ray 5; anal soft ray 8 (last anal ray branched in base). Caudal fin rays mostly branched, distally convex and not elongated, lateral line simple. Head and body sand yellow, covered with numerous small white spots. First dorsal fin plain black ventral side is whitish. Morphomeristic measurements are given in Table 1.

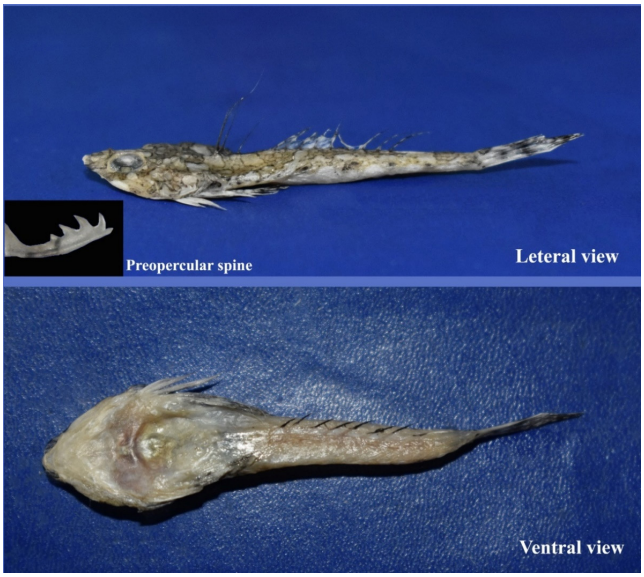

Figure 3. *Callionymus erythraeus* (F1710SM-03) from Saint Martin's Island, Bangladesh.

Distribution: Callionymus sagitta is known to occurs from indo-West Pacific: Arabian Peninsula to the Philippines, Sri Lanka, India, Singapore, Malaysia, Gulf of Thailand, South China Sea and East China Sea, Korea, Vietnam and Indonesia (Fricke, 2002; Froese & Pauly, 2019).

Callionymus erythraeus Ninni, 1934 (Figure 3)

Smallhead dragonet

Material examined: F1710SM-03, 1 ex., 72.5 mm SL, Bangladesh: Cox's Bazar, Teknaf, Saint Martin's Island, Bay of Bengal (20°36'39.6" N, 92°19'37.2" E), 16.x.2017, K.A. Habib & M.J. Islam.

Diagnostic characters: Body elongate, moderately depressed. Opercle without a free flap of skin, interorbital distance 6 in eye diameter. Preopercle spine with antrorse spine, a small up-curved main tip and with five slightly recurved dorsal tips (with main tip) at its dorsal margin. All spine of first dorsal fin has small filamentous (except 3rd spine is slightly long filamentous); last (9th) ray of 2nd dorsal fin is longest. First dorsal fin with IV spines; 2nd dorsal fin with 9 rays (last dorsal ray divided at its base); pectoral soft ray 12; pelvic soft ray 6; anal soft ray 8 (last anal ray branched in its base), lateral line simple. First dorsal fin black; 2nd dorsal fin whitish with black bar; anal fin black with white base; caudal fin whitish with 3 black band. Caudal fin rounded, not elongated. Six black blotch present on side of the body. A dark brown spot present on upper part of the caudal fin base. Morphomeristic measurements are given in Table 1.

Distribution: Callionymus erythraeus was previously known from Western Indian Ocean: Red Sea, Persian Gulf, and southern India (Gulf of Mannar) (Fricke, 2001, 2002; Froese & Pauly, 2019).

Discussion

Approximately 24 species of the genus *Callionymus* were recorded from the Bay of Bengal of Myanmar coasts and India (Fricke, 2002; Nair & Kumar, 2018; Froese & Pauly, 2019). No valid record of species from the genus *Callionymus* was found from Bangladesh waters (Hussain, 1970; Fricke, 2001, 2002; Rahman *et al*., 2009; Thompson & Islam, 2010; Froese & Pauly, 2019) Therefore, the report of *C. sagitta* and *C. erythraeus* from Sundarbans and Saint Martins' island, confirms the presence of the genus *Callionymus* for the first time in Bangladesh waters. Moreover, *C. erythraeus*is also recorded first time from the Northern Bay of Bengal region. The present record forms first report of the genus *Callionymus* with two of its species are important additions to the fish faunal resources of Bangladesh.

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